REMARKS

Request for Information under 37 C.F.R. §1.105

In the Office Action, the Examiner required information under 37 C.F.R. §1.105. The Examiner's request in this regard was for the following information:

1. possible prior use/sale of an "OutLeader" device on the website www.kiteship.com;
2. reference to "Patent Pending" status for an OutLeader kite™;
3. reference to a CNN news article dated 12/19/2002.

Applicant files his declaration concurrently with this amendment and response, and incorporates herein by reference the statements of fact therein.

In pertinent part, these facts address the definition of an OutLeader kite™ and its structure [Culp Declaration, paragraph no. 8], abandoned U. S. Provisional Application Serial No. 60/429,779 [Culp Declaration, paragraph nos. 6 and 7], possible use/sale of an "OutLeader" device on the website www.kiteship.com [Culp Declaration, paragraph nos. 4 - 6].

Information Disclosure Statement

The Examiner's statement about references provided by the Applicant within the specification are noted. Accompanying this correspondence are Forms PTO/SB/08a and 08b detailing the patent references as discussed within the specification and this

correspondence plus the required fee under 37 C.F.R. §1.17(p).

Election/Restriction

The Examiner's statement regarding withdrawal of the prior requirement for election of species is noted and appreciated by Applicant.

The Examiner's holding regarding Applicant's prior traversal of the restriction requirement is noted.

Claim Objections

The Examiner's objections to multiple dependent claims 6 - 10 depending from another multiple dependent claim are noted.

Applicant has amended the claims to correct these claim form defects as required under 37 C.F.R. § 1.75©, MPEP §608.01(n). New claims 35 - 44 are presented as correcting the prior defects in claim form and satisfying these specific Examiner objections.

Claim Rejections - 35 U.S.C. §102

The Examiner has rejected claims 1 - 3, 4(2), 4(3), 5(2), 5(3), 11 - 13, 14(12), 14(13), 31 and 32 under 35 U.S.C. §102 as being clearly anticipated by the device of "Kiteship 1."

Applicant's declaration removes the device of "Kiteship 1" as a reference since all experimentation was not completed until December 19, 2002, when the present invention was first used in public anywhere, in New Zealand.

The Examiner has rejected claims 1 - 2, 4(2), 5(2), 11 - 13, 14(12), 14(13), 16(14(12)), 16(14(13)), 17(16(14(12))),

17(16(14(13))), 18(17(16(14(12)))), 18(17(16(14(13)))), 31 and 32 under 35 U.S.C. §102 as being anticipated by USPN 4,296,704 to Bridge ("704").[1]

a. Re Claims 1, 31 and 32

The Examiner states that 704 discloses a "craft. . . capable of flight without surface discontinuity. . . rigid structure" [704, column 3, lines 33 - 41]. The apparatus of 704, however, always includes rigidly filled gasbags [704, column 2, lines 47 - 49] and relies heavily on such **to hold its shape** [704, column 2, lines 9 - 11]. 704 discloses and claims **stabilizing lines** [704, column 3, lines 33 - 41; claim 1]. Further, 704 **always uses attached gasbags** [*i.e.*, 704, column 2, lines 47 - 49] and double layer-type construction [704, Figs. 1, and 2 - 6]. These disclosed embodiments of 704 are discontinuous, as would be a device with sewn-on fins, attached struts, or fitted chambers. Finally, the 704 device being non-

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[1] The office action also refers to claims 3, 4(3), and 5(3); however, in a telephone interview with the undersigned Attorney for Applicant on 06/30/2005, the Examiner stated that reference to claim number 3 in the rejections under paragraph no. 9 was a typographical error. Applicant further notes that claims 18(17(16(14(12)))) and 18(17(16(14(13)))) were omitted from paragraph 9 of the Office Action; however, in a telephone interview with the Examiner on 09/06/2005, the Examiner stated that these claims were intended to be part of paragraph no. 9, and accordingly are addressed herein.

discontinuous only has lines attached to its corners or edges, never to its center as the puckering generated would constitute discontinuity [704, claim 1; Figs. 1, 2, 5 and 6; column 3, lines 1 - 3]

The apparatus of the present invention presents a single-layer structure without holes, attached bits or fins and, as such, complies with IACC and ISAF Equipment Rules of Sailing, copies of which are attached as Exhibits "A" and "B" respectively to this amendment and response, and incorporated herein by reference.[2] The present invention **flies** freely without rigid support of any kind other than the pure tension in the flying lines and in flight inflation due to aerodynamic forces according to the present invention. [Specification page 22, lines 5 - 16; page 26, line 13 through page 28, line 9].

Accordingly, 704 does not anticipate claims 1, 31, or 32 of the present invention.

b. Re claim 2

The Examiner details the 704 wing as three-dimensional with a plurality of gores of predetermined geometries. What 704 defines is merely a developable

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[2] Specifically: IACC Rule Version 4.0 sections 33.3, 33.4, 33.5 and 37.2; ISAF sections G.1.4, G.1.5, G.1.6, G.1.7, G.1.8, G.1.9, G.6.1, and G.6.2.

aerodynamic surface, consisting of portions of planes, cones and cylinders only - sometimes referred to as conic sections. Wolfram defines a developable surface as one on which the Gaussian curvature is uniformly zero. [*see*: http://mathworld.wolfram.com/Discontinuity.html and http://mathworld.wofram.com/BranchCut.html] As such, a developable surface can be made from sheet metal since the surface must be obtainable by transformation from plane (which has Gaussian curvature of zero) and whereby every point on such a surface lies on at least on straight line.

The Examiner further opines that 704 discloses in Figs. 1 and 6 that the convexity of the trailing edge increases at least slightly because "as the wind blows on the device it will flex and become more and less convex at certain points." 704 provides no discussion of this phenomena nor is it claimed. If such flexing and/or curvature does occur for the 704 device, it is the result of happenstance and not by design, control, or use.

The present invention distinguishes from 704 because as disclosed and claimed in the present invention the curvature **is created and carefully controlled** by the

tailored shape of the kite and by manipulating the lines [claims 1 - 3; specification, page 31, line 7 through page 38, line 5.] The present invention controls air movement across and through the kite's interior volume, and off the trailing edge resulting in controlled turning of the kite. By these means, the "inflation pressure" inside or on the windward side of the kite is controlled directly effecting the shape and rigidity of the leading edge, thus providing the ability to penetrate to windward. As such, the present invention designs-in and specifically controls this curvature in order to use its mechanical advantage over the art, namely devices such as 704. Curvature deviating from the optimal - as the 704 device certainly does - yields uncontrollable structure without resorting to additional structure, struts or rigid support members [704 always relies on helium inflation at all times - *i.e.*, claim 1]. 704 presents at best a stable structure hanging above the transportation means without aerodynamic stability. The present invention, to the contrary, flies.

Accordingly, 704 does not anticipate claim 2 of the present invention.

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c. Re claims 4(2) and 5(2)

Applicant has demonstrated above how the present invention is distinguished from 704 in claims 1 and 2. Accordingly, recitation of similar attachments means does not make claims 4(2) or 5(2) anticipated by 704.

As stated above, 704 does not anticipate either claim 4(2) or 5(2).

d. Re claim 11

Applicant has demonstrated above how the present invention is distinguished from 704 in claims 1 and 2. Further, 704 does not disclose or claim adjustment of flying line length to control attitude, stability and power. Nor does 704 disclose or claim any spinnaker handling or control means other than use of gasbags for rigid support. Accordingly, recitation of flying lines each having one end attached to the sail handling means of the present invention does not make claim 11 anticipated by 704. Indeed, absent knowledgeable and skilled adjustment combined with gross control of the relative line lengths of the present invention, often under great tension, control and stability are impossible under the dynamics of wind, water, and helmsman input.

Further, any three-dimensional effect of 704 is

developable with poor- or non-aerodynamic stability. As discussed above, the present invention is a tailored shape, and is non-developable.

As stated above, 704 does not anticipate claim 11.

e. Re claim 12

Applicant has demonstrated above how the present invention is distinguished from 704 in claims 1, 2 and 11. Accordingly, recitation of similar attachments means does not make claim 12 anticipated by 704.

As stated above, 704 does not anticipate claim 12 of the present invention.

f. Re claim 13

Applicant has demonstrated above how the present invention is distinguished from 704 in claims 1, 2 and 11. Accordingly, recitation of similar attachments means does not make claim 12 anticipated by 704.

As stated above, 704 does not anticipate claim 12 of the present invention.

g. Re claims 14(12) and 14(13)

704 does not disclose or claim adjustment or adjustable means for flying lines. Further, Applicant has demonstrated above how the present invention is distinguished from 704 in claims 12 and 13. Accordingly, recitation of independent manipulation of

flying line length to control roll and pitch, attitude, altitude, flying speed, angle of attack, internal pressure, and gross shape of the wing does not make claims 14(12) and 14(13) anticipated by 704.

As stated above, 704 does not anticipate either claim 14(12) or 14(13) of the present invention.

h. Re claims 16(14(12)) and 16(14(13))

The Examiner opines that the gasbags are "taught to allow the device to hold its shape without a breeze." Applicant respectfully submits the gasbags as disclosed and claimed in 704 do nothing for the spinnaker's shape in no wind conditions other than hold it aloft. More likely, such apparatus as disclosed by 704 will mis-align the spinnaker surface with any slight breeze arising from calm and tangle lead lines.

Applicant has demonstrated above how the present invention is distinguished from 704 in claims 12 - 14. Accordingly, recitation of an enclosure to contain a lighter than air gaseous mixture does not make claims 16(14(12)) or 16(14(13)) anticipated by 704.

As stated above, 704 does not anticipate claims 16(14(12)) or 16(14(13)) of the present invention.

i. Re claims 17(16(14(12))) and 17(16(14(13)))

704 teaches gasbags flexibly attached to the outside

exterior edges of the sail. The present invention uses a bag shaped for minimum surface/volume ratio (lightest weight) located on the inside wing centerline. As such, the present invention provides minimal disturbance of the kite's aerodynamics. The location for the container for lighter than air gaseous mixture(s) of the present invention in a kite constructed like an OutLeader is an area of little to no air movement. Accordingly, there is no aerodynamic penalty for structure provided at this location. 704 neither teaches or discloses this location for the gas enclosure. Instead, 704 centers its gasbags beyond the periphery of the spinnaker and yields potential instability when breeze begins from calm as discussed above.

704 does not teach torpedo shapes, but rather cylindrical shaped gasbags[704, Fig. 5] or irregular shaped gasbags [704, Fig. 6]. A single torpedo shaped container of the present invention is a classic blimp shape, and its location on the inside wing centerline results in a lower surface/volume ratio and superior aerodynamics.

Further, Applicant also has demonstrated above how the present invention is distinguished from 704 in

claims 12 - 14. Accordingly, recitation of a torpedo shaped enclosure to contain a lighter than air gaseous mixture does not make claims 17(16(14(12))) or 17(16(14(13))) anticipated by 704.

As stated above, 704 does not anticipate claims 17(16(14(12))) or 17(16(14(13))) of the present invention.

j. Re claims 18(17(16(14(12)))) and 18(17(16(14(13)))

The Examiner take the position that 704 teaches spinnakers with multiple vaults or lobes. Applicant respectfully submits that all disclosed or claimed examples in 704 are of single lobed spinnakers. The present invention uses the groin between its two lobes (or between the outmost vaults in cases of more than two lobes) to separate and separately control airflow traveling past the inside surface of the kite onto and out of their respective trailing edges. The effect results in the ability to control the kite by altering the relative lengths of the wingtip and tail lines and, thus, the relative curvature of the two trailing edges by controlling the amount of air either retained by or released from each kite lobe.

Further, Applicant also has demonstrated above how the present invention is distinguished from 704 in

claims 12 - 14. Accordingly, applicant's specified and claimed recitation of a torpedo shaped enclosure to contain a lighter than air gaseous mixture does not make claims 18(17(16(14(12)))) or 18(17(16(14(13)))) anticipated by 704.

As stated above, 704 does not anticipate claims 18(17(16(14(12)))) or 18(17(16(14(13)))) of the present invention.

Claim Rejections - 35 U.S.C. §103(a)

The Examiner has rejected claims 1 - 3, 4(2), 4(3), 5(2), 5(3), 11 - 13, 14(12), 14(13), 31 and 32 under 35 U.S.C. §103(a) as being obvious in view of the "OutLeader kite of Kiteship 1" and in further view of "methods of securing. .[as]. . old and well known in the art of parachutes, sails and kites. . ."

Applicant's declaration removes the device of "Kiteship 1" as a reference since all experimentation was not completed until December 19, 2002, when the present invention was first used in public anywhere, in New Zealand.

The Examiner has rejected claims 16(14(12)), 16(14(13)), 17(16(14(12))), 17(16(14(13))), 18(17(16(14(12)))), 18(17(16(14(13)))), 31 and 32 under 35 U.S.C. §103(a) as unpatentable over the "OutLeader kite of Kiteship 1" as applied to claims 1 - 3, 4(2), 4(3), 5(2), 5(3), 11 - 13, 14(12), 14(13), 31 and 32, and further in view of USPN 4,296,704 to Bridge

("704").

k. Re claims 16(14(12)) and 16(14(13))

The Examiner opines that the 704 gasbags are "taught to allow the device to hold its shape without a breeze." Applicant respectfully submits the gasbags as disclosed and claimed in 704 do nothing for the spinnaker's shape in no wind conditions other than hold it aloft. More likely, such apparatus as disclosed by 704 will mis-align the spinnaker surface with any slight breeze from calm and tangle lead lines.

Applicant has demonstrated above how Kiteship 1 is removed as a reference for claims 12 - 14. Further, 704 does not teach or suggest the interior, centerline placement of the container according to the present invention in addition to the limitations of claims 12 - 14. Accordingly, recitation of an enclosure to contain a lighter than air gaseous mixture as specified and claimed by the present invention does not render claims 16(14(12)) or 16(14(13)) obvious in view of 704 since the advantages and benefits taught by present invention for these claims as a whole are not disclosed or taught by 704

l. Re claims 17(16(14(12))) and 17(16(14(13)))

704 teaches gasbags flexibly attached to the outside

exterior edges of the sail. The present invention uses a bag shaped for minimum surface/volume ratio (lightest weight) located on the inside wing centerline. As such, the present invention provides minimal disturbance of the kite's aerodynamics. The location for the present invention in a kite constructed like an OutLeader is an area of little to no air movement. Accordingly, there is no aerodynamic penalty for structure provided at this location. 704 neither teaches or discloses this location for the gas enclosure. Instead, 704 centers its gasbags beyond the periphery of the spinnaker and yields potential instability when breeze begins from calm as discussed above.

704 does not teach torpedo shapes, but rather cylindrical shaped gasbags[704, Fig. 5] or irregular shaped gasbags [704, Fig. 6]. A single torpedo shaped container of the present invention is a classic blimp shape, and its location on the inside wing centerline results in a lower surface/volume ratio and superior aerodynamics.

Further, Applicant also has demonstrated above how the present invention is distinguished from 704 in claims 12 - 14. Accordingly, recitation of a torpedo

shaped enclosure to contain a lighter than air gaseous mixture does not make claims 17(16(14(12))) or 17(16(14(13))) obvious in view of 704.

m. Re claims 18(17(16(14(12)))) and 18(17(16(14(13))))

The Examiner take the position that 704 teaches spinnakers with multiple vaults or lobes. Applicant respectfully submits that all disclosed or claimed examples in 704 are single lobed spinnakers. The present invention uses the groin between its two lobes (or between the outmost vaults in cases of more than two lobes) to separate and separately control airflow traveling past the inside surface of the kite onto and out of their respective trailing edges. The effect results in the ability to control the kite by altering the relative lengths of the wingtip and tail lines and, thus, the relative curvature of the two trailing edges by controlling the amount of air either retained by or released from each kite lobe.

Further, Applicant also has demonstrated above how the present invention is distinguished from 704 in claims 12 - 14. Accordingly, applicant's specified and claimed recitation of a torpedo shaped enclosure to contain a lighter than air gaseous mixture does not

make claims 18(17(16(14(12)))) or 18(17(16(14(13))))

obvious in view of 704.

The Examiner has rejected claim 15 under 35 U.S.C. §103(a) as being unpatentable over 704 as discussed in the office action for claims 1 - 3, 4(2), 4(3), 5(2), 5(3), 11 - 13, 14(12), 14(13), 16(14(12)), 16(14(13)), 17(16(14(12))), 17(16(14(13))), 31 and 32.[3]

n. Re claim 15

Any three-dimensional effect of 704 is developable with poor- or non-aerodynamic stability. As discussed above, the present invention is a tailored shape, and non-developable.

As stated above, claim 15 is not obvious in view of 704.

CONCLUSION

For all the reasons advanced above, applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

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[3] In a telephone interview with the Examiner on 09/06/2005, it was made clear that the same issues addressed for paragraph 9 above, are presented in this rejection. Accordingly, Applicant respectfully submits the same issues and argument provided in this amendment and response for the 35 U.S.C. §102(b) rejections as being anticipated by 704 apply for purposes of 35 U.S.C. §103 (a).

Dated: September 14, 2005.

Respectfully submitted,
/Charles L. Thoeming/
Charles L. Thoeming
Registration No. 43,951
Customer No. 27015
hadvbaxen@earthlink.net

Enclosures: 1)Exhibit A [3 pages]
2)Exhibit B [5 pages]
3)Form PTO/SB/08a [2 pages]
4)Form PTO/SB/08b
5)Form PTO-2038
6)Form PTO/SB/17 [original + one(1) copy]
7)Declaration of David A. Culp [3 pages]
8)Form PTO/SB/21
9)PTO Receipt Postcard

BIELEN, LAMPE & THOEMING, P.A.
1390 Willow Pass Road.
Suite 1020
Concord, CA 94520
(925)288.9720
(925)288.9731 Facsimile
ATTORNEYS FOR APPLICANT

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/Charles L. Thoeming/
Charles L. Thoeming, Registered Representative of Applicants
September 14, 2005
Date of Signature